PILE DRIVING EQUIPMENT

Section 1. INTRODUCTION

1. SCOPE.

a. Discussion. Pile driving equipment, other than derrick-type rigs, usually is selected from available units and seldom is designed or manufactured for a particular project. Selection of proper driving equipment, particularly the hammer and accessories, is of the greatest importance, not only with regard to the efficiency and cost of the pile installation, but also with respect to the structural adequacy and efficacy of the pile itself. Experience indicates that an excessively heavy hammer can, and frequently does, damage a pile; a light hammer will not provide adequate penetration of a heavy pile even though required driving resistance is attained; and jetting can disturb an otherwise satisfactory bearing stratum. This manual presents criteria for the selection of appropriate, commercially available equipment that will be best suited to the job and presents guidelines for the proper use of such equipment.

b. Methods of Installing Piles. Pile driving conventionally refers to installing the pile by driving it into the ground under the action of a hammer. In its broadest sense, however, pile driving includes methods of installation where the action of the hammer is augmented by use of jets or where a hammer is not used at all (as in jacking, screwing, and pull down methods). Use of vibrators to achieve pile penetration also is a common technique. This manual presents a discussion of the effectiveness of various methods and procedures involved in installing piles.

c. Matters Not Covered. This manual does not consider the use or installation of so-called "bored piles." Such constructions are piers, rather than piles and often are referred to as "drilled piers." This manual also does not consider equipment required to install proprietary types of piling such as those with expanded bases, the so-called "root" piles, and certain types of caissons.

2. CANCELLATION. This manual on pile driving equipment, NAVFAC DM-38.4, Army TM 5-849-1 cancels and supersedes Chapter Four, NAVFAC DM-38, Weight Handling Equipment and Service Craft, of August 1975.

3. HEARING CONSERVATION. Impact sound pressure levels can be expected to exceed 140 dB when equipment of this type is used. Unprotected personnel exposed to these high impact sound pressure levels for extended periods of time may incur permanent hearing loss. Therefore, it is recommended that a qualified industrial hygienist be consulted to prescribe the appropriate degree of hearing protection necessary to preserve hearing.

4. RELATED CRITERIA. Certain criteria related to pile driving equipment appear elsewhere in this DM series and in Army Technical Manual TM 5-818-1. See the following DM sources:

Subject	Source
Cranes (including appurtenances)	DM-38.1
Pile Foundations	DM-7 Series
Piling	DM-25 Series